

# United States Patent [19]

Byram et al.

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## [54] AEROSOL DEVICE

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222/162; 222/402.11; 222/402.12; 222/402.13

[58] Field of Search: 128/200.14, 200.23;  
222/162, 402.11, 402.12, 402.13

## [56] References Cited

### U.S. PATENT DOCUMENTS

3,001,524	9/1961	Maison et al.	
3,191,867	6/1965	Helms	128/200.23
3,506,004	4/1970	Mann et al.	222/402.13
3,636,949	1/1972	Kropp	128/200.23
3,732,864	5/1973	Thompson et al.	

3,789,843	2/1974	Armstrong et al.	128/200.23
4,292,966	10/1981	Mono et al.	
4,637,528	1/1987	Washinski et al.	
4,664,107	5/1987	Wass et al.	
4,678,106	7/1987	Newell et al.	
4,765,515	8/1988	Lippman	222/162
4,771,769	9/1988	Hegemann et al.	222/162

## OTHER PUBLICATIONS

Physicians' Desk Reference 1988, 42, pp. 1872-1873.

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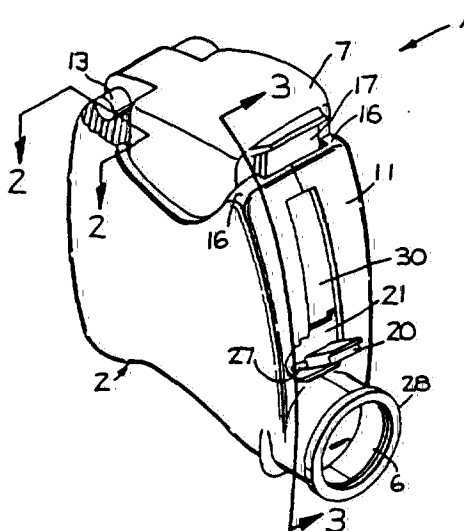
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## [57] ABSTRACT

The invention is a dispenser for use with aerosol formulations for inhalation therapy. The dispenser is small, conveniently carried, and features means to prevent unintended actuation of the aerosol canister and means to prevent dust and dirt from entering the dispenser during storage.

18 Claims, 3 Drawing Sheets



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